IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 (Currently amended): A noise extraction method comprising the steps of:

providing an environmental input which includes a noise indicia,

selectively modifying the environmental input in accordance with an algorithm based on a time response comprising at least two components of a group including delay ~~converge and slow responses~~ in responding to a change in the noise indicia, ~~converge~~ convergence on a noise indicia level, slowness of response to the change in the noise indicia, and

generating an output, whereby the output modifies a system gain, wherein the step of modifying the environmental input in accordance with the algorithm based on a time response includes ~~delaying~~ introducing a delay in responding to a change in the noise indicia above a limit.

2 (Cancelled).

3 (Original): The noise extraction method of claim 1 wherein the modifying step includes an algorithm based on time response, and the time response algorithm includes providing a response which is relatively slow in comparison to the change in noise indicia.

4 (Previously presented): The noise extraction method of claim 1 wherein the time response algorithm further includes converging on a noise level corresponding to the noise indicia above the limit following the delayed response.

5 (Original): The noise extraction method of claim 4 wherein the converging step includes one of a group comprising: a nonlinear response, an exponential response, and a logarithmic response.

6-11 (Cancelled).

12 (Original): The noise extraction method of claim 1 wherein the environmental input comprises a plurality of environmental sub-inputs.

13 (Original): The noise extraction method of claim 1 wherein the environmental input is a digital signal.

14 (Original): The noise extraction method of claim 1 wherein the environmental input is an analog signal.

15 (Original): The noise extraction method of claim 1 wherein the step of selectively modifying the environmental input includes multiple instances of modifying in accordance with the selected algorithm.

16. (Previously presented): The noise extraction method of claim 1, wherein the step of selectively modifying the environmental input includes modifying the environmental input in accordance with a plurality of such algorithms, with at least some of such algorithms based on a different choice within the group.

17. (Previously presented): A noise extraction method comprising the steps of:

providing an environmental input which includes a noise indicia,

selectively modifying the environmental input in accordance with an algorithm based on a time response comprising at least two components of a group including delay, converge and slow responses, wherein the step of selectively modifying the environmental input includes multiple instances of modifying in accordance with the selected algorithm,

generating an output, whereby the output modifies a system gain, wherein selectively modifying the environmental input includes multiple instances of modifying in accordance with the selected algorithm, and

combining at least some of the outputs of the multiple instances.

18 (Original): The noise extraction method of claim 16 further including the step of combining at least some of the outputs of the plurality of such algorithms.

19 (Previously presented): The noise extraction method of claim 1 wherein the output includes a plurality of output signals.

20. (Currently amended): ~~A noise extraction method~~ The noise extraction method of claim 1, further comprising the steps of:

~~providing an environmental input which includes a noise indicia,~~

~~selectively modifying the environmental input in accordance with an algorithm based on a time response comprising at least two components of a group including delay, converge and slow responses,~~

~~generating an output, whereby the output modifies a system gain,~~

providing a reference signal,

determining the difference between the environmental input and the reference signal to generate a negative feedback signal, and

modifying at least one of the environmental input and the reference signal in accordance therewith.

21. (Previously presented): The noise extraction method of claim 1, wherein the noise indicia has a small noise fluctuation amplitude, and further comprising

providing at least one reference input,

determining the difference between the environmental input and the reference input to generate a limited negative feedback signal,

converting the feedback signal to a gain offset having a predetermined maximum and minimum selected to compensate for the small noise fluctuation amplitude.

22. (Currently amended): A method for correcting for small noise fluctuations including the steps of

providing at least one environmental input having a noise indicia with a small noise fluctuation amplitude,

providing at least one reference input,

determining the difference between the environmental input and the reference input to generate a limited negative feedback signal, wherein the limited negative feedback signal controls a negative loop gain and limits the negative loop gain using a gain offset having a predetermined maximum and minimum value,

converting the feedback signal to a gain offset having a predetermined maximum and minimum selected to compensate for the small noise fluctuation amplitude, and

rectifying and envelope detecting the environmental input and the reference input prior to the step of determining the difference.

23. (Currently amended): A method for correcting for small noise fluctuations including the steps of

providing at least one environmental input having a noise indicia with a small noise fluctuation amplitude,

providing at least one reference input,

determining the difference between the environmental input and the reference input to generate a limited negative feedback signal, wherein the limited negative feedback signal controls a negative loop gain and limits the negative loop gain using a gain offset having a predetermined maximum and minimum value,

converting the feedback signal to a gain offset having a predetermined maximum and minimum selected to compensate for the small noise fluctuation amplitude, and

converting the environmental input and the reference input by the root-mean-square method prior to the step of determining the difference.

24-25 (Cancelled).

26 (Currently amended): A noise extraction method comprising the steps of

providing at least one reference signal,

providing at least one environmental input which includes a noise indicia with a small noise fluctuation amplitude,

determining the difference between the environmental input and the reference signal to generate a limited negative feedback signal, wherein the limited negative feedback signal controls a negative loop gain and limits the negative loop gain using a gain offset having a predetermined maximum and minimum value,

modifying one signal of a group comprising the environmental input and the reference signal to minimize the difference to correct for the small noise fluctuation amplitude,

generating a modified output signal in accordance therewith,

selecting as an unmodified output signal one signal of the group not modified in the modifying step,

determining the difference between the unmodified output signal and the modified output signal, and

establishing a noise floor in accordance with the difference between the unmodified output signal and the modified output signal.

27 (Original): The noise extraction method of claim 26 further including the steps of correcting the noise floor for errors introduced by the modifying step.

28 (Original): The noise extraction method of claim 26 wherein the small noise fluctuation amplitude is within a predetermined range.

29 (Original): The noise extraction method of claim 28 further including the step of correcting the noise floor in accordance with the unmodified output signal and the small noise fluctuation amplitude.

30 (Original): The noise extraction method of claim 29 wherein the correcting step introduces a fixed amount of correction.

31 (Original): The noise extraction method of claim 30 further including the step of modifying the correcting step with a correction convergence factor.

32 (Original): The noise extraction method of claim 31 wherein the step of modifying the correcting step introduces a variable amount of correction.

33 (Original): The noise extraction method of claim 32 further including the step of selecting the lesser of the variable amount of correction and the fixed amount of correction, and correcting the noise floor in accordance therewith.

34 (Original): The noise extraction method of claim 1 wherein the environmental input comprises a plurality of inputs.

35 (Original): The noise extraction method of claim 1 wherein the environmental input is at least one of a group comprising a microphone, an accelerometer, a tachometer, and a speedometer.

36-37 (Cancelled).

38 (Currently amended): The noise extraction method of claim 1, wherein providing an environmental input which includes a noise indicia includes:

providing a plurality of environmental input signals each of which includes indicia corresponding directly or indirectly to environmental noise,

combining a plurality of the environmental input signals into the environmental ~~input,~~ input.

39 (Original): The noise extraction method of claim 38 wherein the combining step including a signal processing step.

40 (Original): The noise extraction method of claim 39 wherein the signal processing step is performed separately for each environmental input.

41 (Previously presented): The noise extraction method of claim 40 wherein the signal processing step includes at least one of a group comprising input scaling, filtering, rectification, envelope detection, averaging, Fourier transform, delay compensation, equalizing, emphasizing and de-emphasizing.

42 (Original): The method of claim 21 further including the step of signal processing at least one of the environmental input and the reference input.

43 (Previously presented): The method of claim 42 wherein the signal processing step includes at least one of a group comprising input scaling, filtering, rectification, envelope detection, averaging, Fourier transform, delay compensation, equalizing, emphasizing and de-emphasizing.

44 (Original): The noise extraction method of claim 1 wherein the modifying step includes an algorithm based on time response, and the time response algorithm includes variable attack and release.

45 (Original): The noise extraction method of claim 1 wherein the algorithm includes a plurality of algorithms.

46 (Original): The noise extraction method of claim 45 wherein modifying step includes combining at least some results of the algorithms.

47 (Original): The noise extraction method of claim 45 wherein the plurality of algorithms includes a plurality of time response algorithms.

48-49 (Cancelled).

50 (Previously presented): The noise extraction method of claim 46 wherein the combining step includes combining at least some algorithms configured to perform the same function.

51 (Currently amended): The noise extraction method of claim 1, ~~wherein system gain is modified by the output by~~ further comprising

providing a reference input indicative of output power level,

generating an indication of noise power level in response to the environmental input,

comparing the reference input to the indication of noise power level, and

selectively modifying system gain in accordance with the compare step.

52-53 (Cancelled)

54 (Original): The noise extraction method of claim 51 wherein the comparing step includes scaling of at least one of a group comprising the reference signal, the indication of noise power level and the environmental input.

55 (Previously presented): The noise extraction method of claim 51, wherein the reference input includes a plurality of reference inputs each indicative of associated output power level.

56 (Original): The noise extraction method of claim 55 further including the step of combining at least some of the plurality of reference inputs to generate an overall indication of output power level.

57 (Original): The noise extraction method of claim 55 wherein the environmental input includes a plurality of environmental inputs each including an associated noise indicia.

58 (Original): The noise extraction method of claim 57 further including the step of combining at least some of the plurality of inputs to generate an overall indication of noise power level.

59 (Previously presented): The noise extraction method of claim 26 further including the step of signal processing at least one of the environmental input and the reference input.

60 (Previously presented): The method of claim 59 wherein the signal processing step includes at least one of a group comprising input scaling, filtering, rectification, envelope detection, averaging, Fourier transform, delay compensation, equalizing, emphasizing and de-emphasizing.

61 (Original): The method of claim 26 further including the step of signal processing at least one of the environmental input and the reference input.

62 (Previously presented): The method of claim 61 wherein the signal processing step includes at least one of a group comprising input scaling, filtering, rectification, envelope detection, averaging, Fourier transform, delay compensation, equalizing, emphasizing and de-emphasizing.

63 (Original): The method of claim 21 wherein at least one of the steps of providing at least one environmental input and at least one reference input includes providing a plurality of such inputs.

64 (Original): The method of claim 63 wherein the determining step includes determining the difference between associated ones of the environmental inputs and the reference inputs.

65 (Original): The method of claim 64 wherein the determining step further includes signal processing of at least one of the group comprising the at least one environmental input and the at least one reference input.

66 (Original): The method of claim 64 wherein the converting step includes converting each result of the determining step.

67 (Original): The method of claim 66 further including the step of combining results of the converting step.

68 (Previously presented): The method of claim 21 further including the step of converting the environmental input and the reference input by at least one of a group comprising input scaling, filtering, rectification, envelope detection, averaging, Fourier transform, delay compensation, equalizing, emphasizing and de-emphasizing.

69 (Previously presented): The method of claim 65 wherein the signal processing includes at least one of a group comprising input scaling, filtering, rectification, envelope detection, averaging, Fourier transform, delay compensation, equalizing, emphasizing and de-emphasizing.

70 (Previously presented): The noise extraction method of claim 26 wherein at least one of the steps of providing at least one environmental input and at least one reference input includes providing a plurality of such inputs.

71 (Previously presented): The noise extraction method of claim 70, wherein determining the difference between the environmental input and the reference signal includes determining the difference between associated ones of the environmental inputs and the reference inputs.

72 (Previously presented): The method of claim 71 wherein determining the difference between the environmental input and the reference signal further includes

signal processing of at least one of the group comprising the at least one environmental input and the at least one reference input.

73 (Previously presented): The method of claim 71, wherein the modifying includes converting the negative feedback signal to a gain offset having a predetermined maximum and minimum selected to correct for the small noise fluctuation amplitude, and wherein the converting step includes converting each result of the determining step.

74 (Original): The method of claim 73 further including the step of combining results of the converting step.

75 (Previously presented): The method of claim 72 wherein the signal processing includes at least one of a group comprising input scaling, filtering, rectification, envelope detection, averaging, Fourier transform, delay compensation, equalizing, emphasizing and de-emphasizing.

76 (Original): The method of claim 71 wherein the step of generating a modified output signal includes generating a modified output signal for at least some of the associated ones.

77 (Previously presented): The method of claim 76 further including the steps of selecting, for at least some of the pairs of associated ones, as an unmodified output signal one signal of the group not modified in the modifying step,

determining for at least some of the pairs of associated ones the difference between the unmodified output signal and the modified output signal,

establishing a plurality of noise floors in accordance with the differences between the associated ones of the unmodified output signal and the modified output signal.

78 (Previously presented): The method of claim 77 wherein determining the difference between the unmodified output signal and the modified output signal further includes signal processing of at least one of the group comprising the modified output signal and the unmodified output signal.

79 (Original): The method of claim 78 further including the step of combining results of the determining step.

80 (Previously presented): The method of claim 78 wherein the signal processing includes at least one of a group comprising input scaling, filtering, rectification, envelope detection, averaging, Fourier transform, delay compensation, equalizing, emphasizing and de-emphasizing.

81 (Original): The method of claim 77 further including the step of correcting the plurality of noise floors for errors introduced by the modifying step.

82-88 (Cancelled).

89 (Original): The method of claim 81 further including the step of delaying further adjustments in system gain for a predetermined period.

90 (Previously presented): The method of claim 81 wherein the step of determining the difference between the unmodified output signal and the modified output signal includes signal processing of the difference.

91 (Previously presented): The method of claim 90 wherein the signal processing includes at least one of a group including input scaling, filtering, rectification, envelope detection, averaging, Fourier transform, delay compensation, equalizing, emphasizing and de-emphasizing.

92 (Original): The method of claim 90 wherein the signal processing includes low pass filtering with a corner frequency that decreases over time.

93 (Original): The method of claim 92 wherein the corner frequency decreases over time to a predetermined limit.

94-117 (Cancelled).

118 (Previously presented): The noise extraction method of claim 4, wherein the time response algorithm further includes providing a response which is relatively slow in comparison to the change in noise indicia following the converged response.

119-120 (Cancelled).

121 (Previously presented): The noise extraction method of claim 1, wherein the time response algorithm further includes providing a relatively slow response in comparison to changes in noise indicia following the delayed response when the noise indicia is below the limit.

122 (Previously presented): The noise extraction method of claim 3, wherein the time response algorithm includes low pass filtering.

123 (Previously presented): The noise extraction method of claim 1, and further comprising the steps of

providing a noise sensitivity control signal, and

modifying the environmental input based on the noise sensitivity control signal, wherein

the environmental input modifies signal to-noise ratio of a system output.